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ANALYSIS OF HUMAN OSTEOLOGICAL REMAINS FROM KNOX COUNTY

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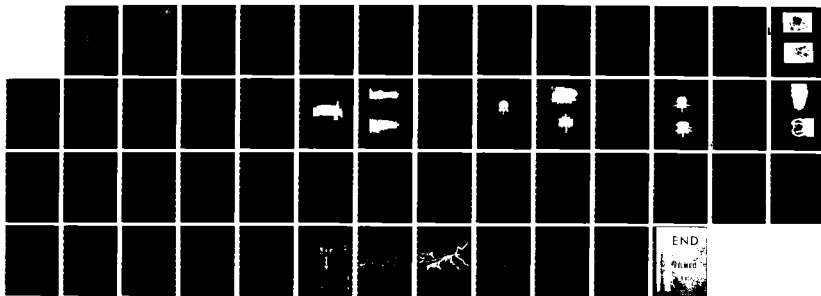
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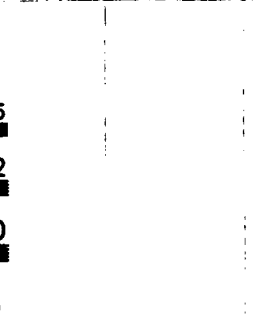
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ANALYSIS OF HUMAN OSTEOLOGICAL REMAINS  
FROM KNOX COUNTY, NEBRASKA

BY  
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AND  
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OSTEOLOGICAL ANALYSIS  
BY  
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Paleoenvironmental samples show a climate similar to the present. Small mammal remains associated with the burial are identified as those of a cottontail rabbit and southern bog lemming. A literature search describing mortuary practices in the area through time, as well as previous archeological investigations, does not suggest any clear cultural affiliation for these remains.

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# ABSTRACT

An incomplete burial was located at site 25KX71 during the 1982 cultural resources survey of Lewis and Clark Lake/Gavins Point Dam. It appears to be that of an elderly male, perhaps as old as 70, suffering from arthritis and osteoporosis. Both scapulae were present along with most of the ribs and vertebrae. The right cuneiform was also present. A secondary burial, the remains were wrapped in a cedar bark bag or cedar mats after most of the flesh had been removed, probably by exposure. The remains were placed in a bell-shaped pit near the top of an erosional remnant. Cultural material not directly associated with the burial suggests a Woodland age, but the burial itself is similar to those from the Central Plains or Initial Coalescent Tradition sites.

Paleoenvironmental samples show a climate similar to the present. Small mammal remains associated with the burial are identified as those of a cottontail rabbit and a southern bog lemming. A literature search describing mortuary practices in the area through time, as well as previous archeological investigations, does not suggest any clear cultural affiliation for these remains.

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## I. INTRODUCTION

This report presents the results of analysis of a human burial from site 25KX71, Knox County, Nebraska, located during the 1982 cultural resources survey of Lewis and Clark Lake/Gavins Point Dam. This analysis was conducted under the provisions of Contract #DACW-45-82-M-2999 between the U.S. Army Corps of Engineers, Omaha District, and Wichita State University, and completed by Alex W. Barker and Donald J. Blakeslee (Principal Investigator). Dr. Michael Finnegan performed the osteological analysis and served as key consultant.

The Scope of Work called for the extraction and processing of special samples associated with the burial area for flotation and pollen analysis, a comprehensive literature search detailing the archeology and history of the area associated with the burial, osteological analysis of all human skeletal material, archeological analysis of associated cultural remains, and compilation of all studies described above into a detailed project report.

## II. EXCAVATION

Site 25KX71 was located during the 1982 cultural resources survey of Gavins Point Dam/Lewis and Clark Lake (Fig. 3-5). It was originally identified as a historic farm site with a small lithic scatter, tentatively identified as Woodland on the basis of several small points (Blakeslee and O'Shea 1983). The site was resurveyed later in the field season, and part of a human bundle burial was located eroding from the south face of an east/west trending erosional remnant. The distal ends of four ribs and part of the right scapula were exposed in yellow loess about one meter beneath the ridge crest.

Drs. Donald J. Blakeslee and John O'Shea reduced the overburden above the burial to a level surface in an attempt to locate the boundaries of the burial pit. While some textural differences and subtle color changes were noted, the outline of the feature could not be identified until the excavated area had been reduced to the level of the skeletal material. The area immediately above the burial was excavated until one scapula, several ribs, and part of four vertebrae were exposed and cleaned (Pl.1,2). In the SE and SW portions of the excavation area, part of the outline of a bell-shaped pit became visible. No diameter for this feature could be defined since it was only visible in two small irregularly curved areas. A rather small diameter may be inferred from the position of the remains, suggesting the individual was tightly flexed and partially articulated. Just north of the left scapula was a small piece of red cedar

bark. Several very small pieces of cedar bark were scattered throughout the feature fill. Also present were several unarticulated small bones belonging to a small rodent (southern bog lemming, Synaptemys cooperi). The human remains were pedestalled, and the excavation area was reduced to a total of 25 cm. beneath the right scapula before undisturbed colluvium was reached. The fill included more rodent bone, as well as some recently intrusive seeds and snails. After consultation with Corps of Engineers' monitoring officer, the human remains were removed and the pedestals reduced.

The sacrum was some distance from the rest of the axial skeleton (roughly 30 cm.) and at an anatomically impossible angle. One of the lumbar vertebrae was located immediately above the colluvial matrix and may mark the base of the burial pit. The right scapula lay on top of the rib cage and vertebral column, both of which were in proper anatomical order, although the vertebral column was flexed and twisted sharply to the right (Fig. 1). The left scapula was found north and east of the rib complex at roughly the same level as the right scapula. The sternum and ossified xiphoid process were located immediately beneath the rib complex in the approximate anatomical position but without visible articulation. The cuneiform was recovered from just beneath the rib complex.

Also present from the area beneath the rib complex were several small bones, later identified as belonging to a cottontail rabbit (Sylvilagus floridanus) (Michael Finnegan 1983: personal communication). Both the calcaneous and innominate from the right side are present,



PLATE 1. Burial at 25KX71, from above, showing articulation of vertebral column and location of scapula.- Trowel points north and serves as a scale.



PLATE 2. Detail of burial showing twist of vertebral column and articulation of ribs. View looking east.

although it is impossible to tell whether these remains are from the same animal. One small snail shell is also present, and has not been identified, as it was clearly intrusive.

Material not in direct association with the burial seems to be of Woodland age, although the burial form and placement seems more reminiscent of Central Plains or Initial Coalescent groups. Given the present evidence, no firm date or cultural affiliation for the burial may be advanced. The burial appears to have been defleshed prior to interment and was partially articulated. The skeleton was tightly flexed and possibly wrapped in a cedar bark bag or in cedar mats, then placed in a fairly small bell-shaped pit. The depth of the pit could not be determined, nor could it be determined whether the overburden was cultural or natural in origin.

## **HUMAN SKELETAL MATERIAL 25KX71**

(sketch- not to scale)

FIGURE 1.

### III. OSTEOLOGICAL ANALYSIS

All skeletal material recovered from 25KX71 was submitted to Dr. Michael Finnegan of the Kansas State University Osteology Laboratory for osteological analysis. The material was unpacked, cleaned of dirt and other adherent debris, and preserved in a 7.5% solution of polyvinyl acetate (PVA - AYAF, Union Carbide) utilizing acetone as a transport. Once the material was dry, it was separated into like elements for analysis.

Polyvinyl acetate was employed to stabilize the bone as Dr. Finnegan found it very lightweight and subject to deterioration through handling. Since cedar bark had been recovered from the burial feature, no radiocarbon samples were extracted prior to stabilization.

The skeletal material recovered consisted of large parts of the axial skeleton. As the burial was visibly eroding from the knoll when located, it seems likely that additional portions of the burial may be located in the talus slope at the base of the erosional remnant.

#### Material Present (Fig. 2)

All of the bone is in good condition. With the exception of minor eroded portions and some breaks (in the ribs and vertebrae), the bone is lightweight but fairly solid. The preservation of this material in polyvinyl acetate has strengthened the outer cortex to some extent and increased the weight of the bone slightly, such that

it will allow extensive handling without further deterioration of the bone material.

The corpus of the sternum and a separate but ossified xiphoid process are present. The right scapula is present, but the acromial portion of the scapular spine and acromial process is missing. The left scapular infraspinous fossa portion from the circumflex sulcus inferiorly is present. The seventh through twelfth thoracic vertebrae are present completely, along with portions of the centrum of the fifth and sixth thoracic vertebrae. There is also one reconstructed separate spinous process which could not be attached to the body of either of the incomplete vertebrae. Four lumbar vertebrae are present (missing the fourth lumbar), as well as the sacrum with a fused coccyx. The coccyx and the fifth sacral segment show some deterioration. Twelve right and ten left ribs are present, with the first and eleventh left ribs missing. Two ribs are represented by vertebral segments including the head, neck, articular portion of the tubercle, and the non-articular part of the tubercle. Both are from the left side. Neither of these portions can be attached to the ribs described above. A number of smaller fragments are present, but these cannot be reconstructed with other bones present. The third cuneiform from the right foot is also present.

### Sex

Determination of sex was made using measurements and robusticity of the remains. Sacral evidence suggests the individual was

male. The sacrum is relatively long compared to its breadth, the promontory and body represent metrically more than one-third of the total width of the sacrum. The sacrum is quite concave from the anterior surface; the auricular surfaces are long and narrow and extend well onto the third sacral segment. The lumbar and lower thoracic vertebrae are also large and rugged, and the right scapula is particularly robust. However, while the surface of the sternum is robust, it is relatively narrow. It would thus appear that the remains are those of a male.

#### Age

The age of the individual represented is advanced. The light weight of the bone material suggests advanced osteoporosis, as does the thinning of the otherwise rugged scapulae. In addition, the margins of the vertebral bodies are relatively sharp rather than rounded, also suggesting advanced age. While no precise age could be established, this individual was apparently in excess of 50 years of age, and perhaps as old as 70 years of age.

#### Race

In the absence of cranial remains, which would permit an accuracy of 85-90% utilizing morphological criteria, or above 90% using discriminant analysis of cranial metrics, the assessment of race is hazardous. The only bones suggestive of race that are present are the right scapula and the corpus of the sternum. In this case,

however, the corpus of the sternum is nondescript with respect to racial groupings. The scapula was measured for height and breadth, with a resultant breadth-height index of 72.12. This index is most closely associated with the Pima and Pueblo, and the Negrillo, following tabular material of Hrdlicka (1942); and Krogman (1962). Due to individual differences, coupled with the poor discriminative power on the scapula, there is insufficient data to assign these remains to any racial grouping.

#### Stature

The only bone present which is at all suggestive of stature is the corpus of the sternum. Dwight (1894) suggested a ratio of sternum length to stature of 9.59%, but ultimately concludes that sternal variations are so numerous that the method must be disregarded (see also Stewart 1979). No stature can be suggested, given the material present.

#### Anomalies

Minor anomalous conditions known as discrete or non-metric traits are presented in Table 2. Two additional primary anomalies are present in this skeletal material. The first is an accessory articulation bilaterally present between the fifth lumbar vertebra's transverse processes and the alae of the sacrum. This anomaly is one of resting with very slight movement causing the accessory articulation. In addition, there is a sacral hiatus or spina bifida (Pl. 11).

Lumbar vertebra #5 showing accessory articulation (bilaterally  
between transverse process of L5 and alae of the sacrum.



PLATE 3. The right lateral surface of the articulated vertebra in  
approximately the same position as the x-ray of the same  
material.

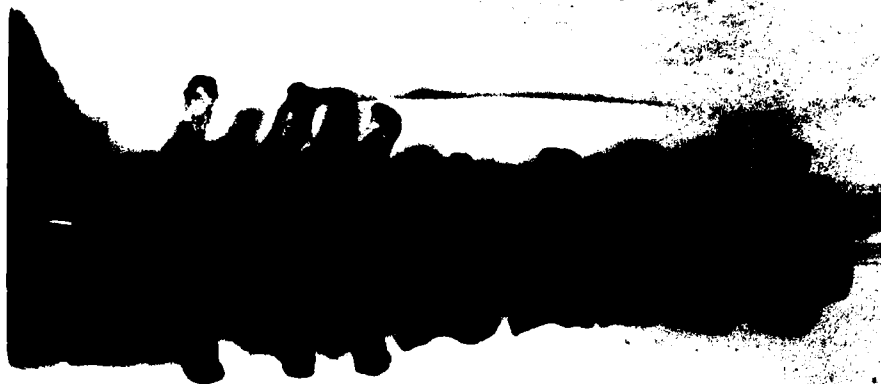


PLATE 4. The anterior surface of the articulated vertebra.



PLATE 5. The posterior surface of the articulated vertebra.

opening in the spinal canal posteriorally on the fourth and fifth sacral segments extending downward to the fused portion of the coccyx. No other anomalous structures were noted in the skeletal material present.

#### Pathological Conditions

By and large the pathology seen in this material may be attributed either to the individual's advanced age or the minor trauma of a hard life. Some arthritic expansion and very mild lipping is present on the posterior margin of the glenoid cavity of the right scapula. Minor arthritic lipping is also present on the anterior margin of the seventh through twelfth thoracic vertebrae (Pl. 3-5). Arthritis has involved the articular surfaces of the tenth right anterior articular surface and the corresponding superior right articular surface of the eleventh thoracic vertebra. Erosion and expansion of this articular region is visible, with a very mild eburnation on the medial and interior margin of this particular joint.

A similar condition exists on the right articular surfaces of the eleventh and twelfth thoracic vertebra, with less erosion and osteophytic activity than those regions described above, but with an increased eburnation which has polished the adjoining surfaces over the entire extent of those surfaces. On the left articular surfaces of these vertebra, there is also some minor eburnation around the periphery of the articular surfaces with no other degenerative changes visible. The twelfth thoracic vertebra also displays a compression

Thoracic vertebra #12, concave compression fracture noted at the anterior surface, with interior structure of the corpus displaying some collapse and remodeling.



PLATE 6. The superior surface of thoracic No. 12.



PLATE 7. The inferior surface of thoracic No. 12



PLATE 8. The anterior surface of thoracic No. 12  
showing compression fracture.

fracture, most noted at the anterior surface, with some collapse and remodeling of the interior structure of the corpus. This fracture corresponds to the biconcave type fracture as delineated by Kelly and El-Najjar (1980). The first lumbar vertebra appears normal in every aspect, except for some age dependency showing some arthritic lipping at the margin of the centrum on the left side. There is also a defect on the interior surface of the centrum, running into the vertebral body. From microscopic observation, some of this looks to be old with some sclerotic buildup in these margins. Lumbar vertebra 2 appears normal to the extent of the articular surfaces, but this vertebra also displays a biconcave fracture with the reduced margin anteriorly. Bone regeneration in this area is slight and some of the bone has either been absorbed or further eroded in the archeological setting.

Lumbar vertebra 3 shows excessive lipping on the anterior and left lateral superior margins of the centrum. Some lipping is also noted on the interior margin running to the anterior and left lateral side, but not as extensive as that seen on the superior margin (Pl.9,10).

The fourth lumbar vertebra is missing. The fifth lumbar vertebra appears normal with respect to arthritic activity, with the exception of the accessory articular facets (noted above) occurring on the inferior margins of the transverse processes articulating with the alae bilaterally on the sacrum.

The sacrum shows some erosion of the superior surface of the body of the first sacral segment with extensive lipping on the right

Lumbar vertebra #3, showing arthritic lipping on the anterior and left lateral superior margins of the centrum, and on the interior margin running to the anterior and left lateral side.



PLATE 9. The superior surface of lumbar No. 3.



PLATE 10. The inferior surface of lumbar No. 3.

interior lateral margin of the body. This has not fused with L-5, although there may have been some bone to bone articulation at that site. The remainder of the sacrum appears unexceptional, pathologically.

#### Trauma

Two instances of trauma are suggested by the material presented for analysis. The right twelfth rib shows a break which may have been relatively recent (prior to death) with some bone regeneration and lipping, but without complete fusion of this break. A false joint appears to be developing here, rather than complete union of the bone. The second left rib shows what appears to be, by morphological inspection, a healed fracture at the position of the costal tuberosity (Pl. 12). Lumbar vertebra 12, as noted above, shows a biconcave fracture with the reduced margin anteriorly (Pl. 6-8). These are also illustrated by the x-radiography.

#### X-Ray Analysis

Analysis of the radiographs reveal that the fracture on the right 12th rib indeed was healing, but fusion had not taken place. The healing itself is sporadic and the radiographic evidence shows a slight increase in bone density along the inferior margin of this rib.

On the other hand, the second left rib, which appeared to be a healed fracture morphologically, is not substantiated as a fracture



PLATE 11. Posterior view of sacrum showing spina bifida.

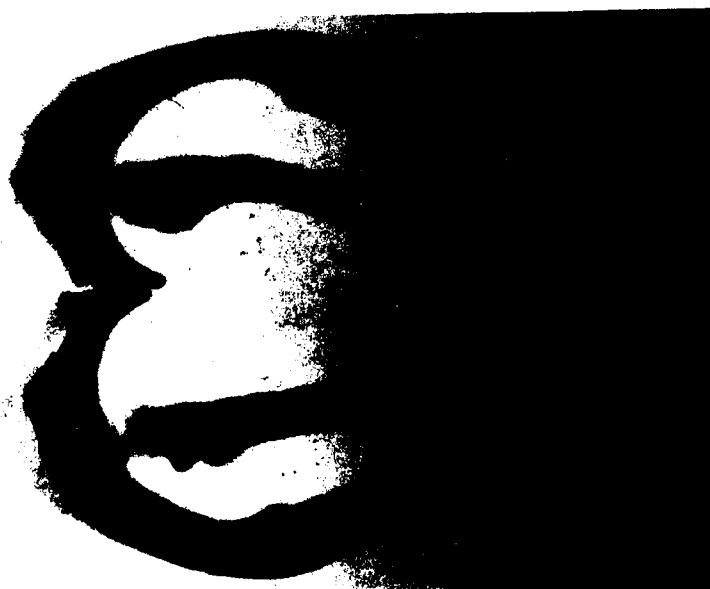


PLATE 12. Ribs showing possible evidence of trauma. Second left rib (top) with apparent healed fracture at costal tuberosity. Right twelfth rib (second from bottom) with incompletely fused break.

in the radiographic analysis. Rather, it appears that the costal tuberosity is very well developed, with some overlying impressions that the right second rib did not have.

The radiograph of the vertebral column shows an advanced porosity which goes along with the age of this particular individual as possibly senile osteoporosis. Arthritic lipping, defined above, is easily seen on the x-ray as is the increased bone density in the body portion of both the 12th thoracic vertebra and second lumbar vertebra, each of which suffers from a compressive fracture.

Other than this, the radiographs do not disclose trauma or pathology that was undetected in the gross morphological inspection.

The x-rays were taken on high detailed film utilizing 60MA, 40KVP, at .016 seconds.

#### Concluding Remarks

Figure 2 is a graphic representation of the skeletal parts present. Table 1 provides the measurement of those bones present, with the standard measurements. Table 2 provides a tabulation of the few non-metric traits observed in this material. (See Appendix A).

This elderly male individual may have been right-handed on the basis of differential development of the scapula where portions of the left and right side are observable. This is particularly true of the lateral margin showing the origin of the teres minor and teres major muscles. In particular, the differential length and weight of the bone at the insertion of the teres major muscle

suggests a more muscular right side of the body indicating the individual represented was right-handed.

Analysis of the remains will continue to investigate both the healed fracture at the costal tuberosity of the right twelfth rib and the sclerotic buildup on the margins of the interior surface of the centrum running into the body of the twelfth thoracic vertebra.

These remains will be housed in the Osteology Laboratory at Kansas State University (O.L. 82-9) until all documentation has been submitted and the final report is accepted.

#### IV. SPECIAL SAMPLES

A variety of special samples were extracted as specified in the Scope of Work. A soil sample, collected during excavation from the immediate area of the burial, was divided into three parts. One part was submitted to the Palynological Laboratory at the University of Kansas. The remainder underwent further separation through flotation.

Flotation analysis revealed very little. No carbonized material was present, nor were any cultural remains recovered. Several small seeds were present, but all were uncarbonized and hence, intrusive and recent. No attempt was made to identify these seeds, although they appear to be cedar seeds. The seeds undoubtedly came from the modern cedar trees lining the top of the knoll. Pieces of cedar in the burial feature itself were in situ, and were located within a definable burial pit, ruling out introduction through disturbance of the feature. Field notes indicate that the cedar was in direct association with the skeletal material. Three very small pieces of cedar were also recovered. One small bone, apparently belonging to a cottontail rabbit (Sylvilagus floridanus) was recovered. Large amounts of thistledown and recent plant debris were also present.

The palynological assay proved somewhat more successful. The sample was contaminated, making statistical or frequency breakdown impossible (Glenn Fredlund 1983: personal communication). A variety of paleo-pollens seem to be present, with the pollen sum dominated by

anemophilous taxa. Pollen present include:

sedge	( <u>Cyperaceae</u> )*
cattail	( <u>Typha</u> )*
grass	( <u>Poaceae</u> )
Cheno-am	( <u>Chenopodiaceae</u> )
amaranth	( <u>Amaranthaceae</u> )
nettle	( <u>Urtrica</u> )
evening primrose	( <u>Cenothera</u> )
mallows	( <u>Malvaceae</u> )
asters	( <u>Asteraceae</u> )

Several arboreal species are also present;

pine	( <u>Pinus</u> )
elm	( <u>Ulmus</u> )
hackberry	( <u>Celtis</u> )
cottonwood	( <u>Populae</u> )
willow	( <u>Salix</u> )

While the interpretation of contaminated pollen samples is necessarily risky, Glenn Fredlund (staff palynologist, K.U. Palynology Laboratory) suggests that the paleo-pollen sample indicates a moist environment, not substantively different than the modern one.

One larger (3 x 5 x 1.5 cm.) piece of wood, identified as cedar (Juniperus), was recovered during excavation from the immediate area of the burial.

Faunal material recovered during excavation was submitted to

\*These genera make up more than 20% of the pollen sum. Note that pine pollen is probably present due to long distance wind transport, and may not represent a local pine forest (McAndrew and Wright 1969: 17-43).

Dr. Michael Finnegan for preservation and storage. These remains have been identified as belonging to the southern bog lemming (Synaptemys cooperi) and cottontail rabbit (Sylvilagus floridanus). (See section on Excavation).

## V. LITERATURE REVIEW

The literature review specified in the Scope of Work is divided into two parts: an overview of mortuary practices in the region; and a summary of archeological excavations of burials in the general area of site 25KX71.

### Mortuary Behavior

Mortuary practices for the overall region will be presented by temporocultural period and cultural group (where possible), beginning with the earliest known groups in the area and extending through ethnographically described groups.

Paleo-Indian: Paleo-Indian burials are unknown from the project area. Paleo-Indian burials from the Gordon Creek site in Colorado (Breternitz et al. 1971) and the Anzick site in Montana (Lahren and Bonnicksen 1974) seem to be characterized by various diagnostic grave goods, including fluted points, and decoration with red ocher.

Archaic: Mortuary remains are relatively common from the Archaic period, but local variation makes delineation of characteristic burial posture or furniture difficult. There does appear to be a tendency toward defined burial areas, flexed burial, and fairly limited sets of grave goods. The Lewis Central School site (Anderson et al. 1978), located in western Iowa, contained the remains of 26 individuals in a flexed posture with a small number of grave goods. Radiocarbon dates for the Lewis Central School site indicate a Late Archaic affiliation

(2815  $\pm$  80 B.P.). A series of sites of roughly the same age in Nebraska (25C022, 25BT20, 25RW2, 25MP2) exhibit similar characteristics.

Early Woodland: The two purportedly Early Woodland occupations in the project area, the Fox Lake Phase and the MAD manifestation, have not produced any burials to date. Early Woodland burials from Illinois suggest both flexed burial and cremation were practiced (Perino 1966: 8).

Middle Woodland: Three distinct taxonomic units are present in the Central Plains and Middle Missouri subareas, but only one, the Valley Phase (Ludwickson et al. 1981: 121-125), is present in the immediate area of 25KX71. Valley Phase Middle Woodland is probably best known from burial mounds throughout Nebraska and South Dakota. O'Brien (1971) summarizes Valley Phase mortuary behavior and suggests several characteristic traits for Valley Phase burials:

1. Interment includes all individuals from a fixed time period, possibly one year.
2. Burial takes place on a prominent hilltop in a cleared area.
3. The dead are defleshed by exposure prior to interment.
4. Burials are usually at or near ground surface and covered by a low mound.

Early Late Woodland: No burial sites clearly affiliated with Early Late Woodland groups have been located in the project area, although one site (the Wheeler Mound site) has been tentatively assigned to this period (Ludwickson, Blakeslee, and O'Shea 1981: 126).

If this site is Early Late Woodland, then the burial practices seem roughly the same as those of Middle Woodland and some Late Late Woodland practices.

Late Late Woodland: The only Late Late Woodland complex represented in the project area is the Loseke Creek Phase (Kivett 1952). Howard and Gant (1966) report several low conical mounds from the Gavins Point area (see Previous Work). A number of burial characteristics have been noted by various authors (cf. Howard and Gant 1966; Price 1956; Neuman 1960), and these may be summarized as:

1. interment in low conical mounds.
2. secondary reburial in mound sub-floor pits with limited grave goods.
3. flexed or bundle interment.

One Loseke Creek burial reported from Lewis and Clark Lake was from 25KX8, the Larson Mounds site. Several low mounds contained secondary bundle burials with ceramic vessels included as grave goods.

Great Oasis: Great Oasis burials tend to occur as formal burials in a flexed posture, or as randomly scattered burials in habitation debris (Knauth 1963). All Great Oasis burials seem to be secondary interments. While several Great Oasis sites are known from the project area, no putative Great Oasis skeletal remains have been located.

Mill Creek: At present, Mill Creek sites are thought to be limited in distribution to the northwest corner of the State of Iowa. Mill Creek burials are relatively common, but few intact examples of Mill Creek funerary practice are known. Four primary burial types

have been identified (Lilly and Banks 1965: 5):

1. primary inhumation, extended posture.
2. primary inhumation, flexed posture.
3. secondary interment, burned.
4. unburned secondary interment.

It is unclear whether these separate types are sequential steps in a single mortuary program, or are distinct separately practiced mortuary techniques.

Nebraska Phase: The Nebraska Phase of the Central Plains Tradition is the only Central Plains variant known from the project area (following Ludwickson, Blakeslee, and O'Shea's 1981 reassignment of St. Helena to the new Basal Coalescent taxon). The dead were defleshed in charnel houses, where at least some cremation occurred. Burial places tended to be on high ground with the dead usually buried in shallow pits, often covered with limestone slabs. Few grave goods were included with the dead.

Basal Coalescent: As defined by Ludwickson, Blakeslee, and O'Shea (1981: 161-166), the Basal Coalescent includes both the St. Helena and Loup River foci. Only St. Helena materials are known from the project area. Both individual pit burials and ossuaries have been reported from St. Helena contexts. At the Wiseman Mound site (Cooper 1936), it appears that both are part of a single mortuary sequence.

Initial Coalescent: Burials from Initial Coalescent sites tend to be found in refuse pits of habitation sites or, as at the Arzberger site, on a small knoll near the site. While this seems quite similar

to the pattern observed at 25KX71, the erosional remnant did not appear to be associated with Initial Coalescent materials. No Initial Coalescent sites have been found at Lewis and Clark Lake.

Oneota: Mortuary practice among Oneota groups seems to have been highly varied. Early Oneota groups in Wisconsin seem to have built burial mounds; later, extended primary burials with few grave goods became common throughout the Oneota area. Jeske (1927: 172-173) reports empty burial pits from the Walker-Hooper site, suggesting that reburial may have been part of the mortuary practices of Oneota. This suggestion seems to be confirmed by Gradwohl (1974: 96), who reports a charnel house from a Moingona Phase Oneota site.

Redbird Phase: The Redbird Phase represents an Oneota variant, possibly representing the 17th century Ponca. Sites from the area include 25KX4 and 25KX9/2. Burial practice is poorly known for the Redbird Phase, although there is some slight evidence for primary extended interment in shallow belled or straight-sided pits with some grave covering possible.

Historic Pawnee: Bushnell (1927: 79-80) reports that Pawnee dead were buried in a sitting position in shallow graves, and a low mound was raised above the grave. Cemeteries were located on high ground some distance away from the village.

Historic Arikara: Quite a bit of variation is visible in Arikara burial practice. Mortuary practices included primary burials in small pits covered with poles, exposure by placing the body on a scaffold followed by pit interment, and possibly late prehistoric

use of ossuaries.

Historic Ioway: The Ioway seem to have utilized two major mortuary techniques: scaffold burials; and subground interment with the dead in a sitting position, covered by a low mound. This is similar to techniques described by Bushnell for the Oto and Missouri in the 1830's (1927: 61-65).

Historic Omaha and Ponca: Burial techniques are the same as among the Ioway, but Fletcher and La Flesche (1911: 392) note that the Omaha and Ponca always placed seated burials so that they faced the east.

Historic Sioux: Santee Dakota practiced primary extended burial and erected a small house over the site. Scaffold burial is also reported for the Santee and is the only burial form reported for the Middle Dakota and Teton groups.

#### Summary of Mortuary Excavation

A surprising number of human burials have been recorded within the project areas. Sites with known human burials include 25KX8, 25KX202, 25KX207, 39YK1, 39YK202, 39YK209, and 39B0206.

Site 39YK1 was excavated by W. H. Over. The site was located on a high terrace above the Missouri River. Over describes five mounds in a line running SE/NW, each mound about 30-40 feet in diameter and less than two feet in height. Sixteen skulls were recovered, along with a number of extended and secondary burials (Over 1973; the skeletal material is housed at the South Dakota Archeological Research

Center, Fort Meade, skeletons #16503, 16504, 16505, and 16506. While some doubts remain concerning the cultural affiliation of this site, it is most likely Middle to Late Woodland in age, representing the Valley Phase of the Middle Woodland period or the Loseke Creek Phase of the Late Woodland period. The site has been reportedly destroyed.

Site 39YK209 is located on a wide terrace on the east bank of Lesterville Creek. The site includes a rather extensive and homogeneous ceramic assemblage, but the two separate components producing similar ceramics are separated by 1.5 meters of sterile soil. A single human skull was recovered from one of these components by the U.S. Army Corps of Engineers. The skull has been identified as that of a juvenile female. No burial context was recorded, and no other skeletal material has been recorded from this site. The materials reported from 39YK209 are particularly diagnostic. Howard and Gant (1966: 11-12) suggest a Plains Woodland affiliation, probably representing either Valley Focus or Loseke Creek forms.

Site 39B0206 produced a single human burial, that of an adult male with no articulation of the remains. The burial was located by Howard and Gant (1966: 12-13), and was found washing out of a steep slope. Excavation of the area produced evidence for an ovoid pit containing the secondary interment of a human cranium lying face down atop carefully stacked ulnae and femorae, apparently belonging to the same individual. At the foot of these piled long bones lay the ilium. The burial was oriented east and west. The similarity of this burial to that at 25KX71 is striking, but may be a result of

circumstances rather than representing actually similar burials. The burial at 25KX71 was at least partially articulated and included most of the axial skeleton. Little of the axial skeleton was recovered from 39B0206, and the individual was completely defleshed prior to interment. No cultural affiliation was established for this burial, although Howard and Gant posit a Plains Woodland affiliation (1966: 13).

Site 39YK202, now destroyed, contained skeletal material, round beads, and apparently the remains of more than one individual. The site also produced half-moon shaped pendants of shell. It was destroyed by power equipment during the construction of the Fish and Wildlife Hatchery. No cultural affiliation was determined for this site.

Site 25KX8, the Larson Mounds site, was excavated in 1937 by the Laboratory of Anthropology of the University of Nebraska. The site included at least ten low mounds, less than 18" in height. Two mounds were trenched and several bundle burials were recovered. The first mound contained one individual, poorly preserved, with a restorable Woodland vessel. The second contained an incomplete bundle burial of at least two individuals, along with several Woodland period potsherds. The 1982 cultural resources survey did not definitely relocate 25KX8.

Site 25KX207, tested by W. H. Over and excavated by Howard and Gant, contained a fairly large number of burials and represented Ponca burials intrusive to a Woodland period ossuary. No discussion of this material has been published, although Over discusses his tests (Over n.d.),

and Howard and Gant include several photographs of work at 25KX207 (1966: plates 12-14).

Site 25KX200 was first noticed by amateur collectors when human skeletal remains began to erode out of deposits just west of Weigand Creek. No archeological work has been performed at 25KX200, and it is not known whether additional burials are present at the site. Since 25KX200 is a multicomponent site, no cultural affiliation may be suggested for this material. No other information was recorded for this burial.

While numerous human burials are reported from the region around 25KX71, far less archeological work has been done in this area than most other areas of the Missouri River Valley. A more complete discussion of archeology in the general area of the project is presented in Blakeslee and O'Shea (1983: 108-117).

## VI. CONCLUSIONS

The condition of the burial made it impossible to establish the precise size and shape of the pit, as well as the relationship of the skull and long bones (which were not present) to the remainder of the axial skeleton. Coupled with the absence of diagnostic cultural material in direct association with the burial, it is impossible to confidently assign this burial to any cultural group. It is possible that the burial is associated with the Woodland component recorded at the site. It is also possible that the burial is associated with a Central Plains Tradition or Basal Coalescent Variant site, although a habitation site would be expected to be nearby. While no materials from either complex were reported from 25KX71, such a site may lie further along the drainage, off U.S. Army Corps of Engineers' property.

The plant materials do not suggest any particular group, nor are they in any way remarkable. All botanical remains (both palynological and macrofloral) represent plants commonly used ethnohistorically by groups on the Plains (Gilmore 1919).

The absence of the cranium and long bones makes craniometric identification of cultural affiliation impossible. We recommend, however, that the area be tested for additional burials, or at the very least, monitored so that no additional evidence is lost to erosion.

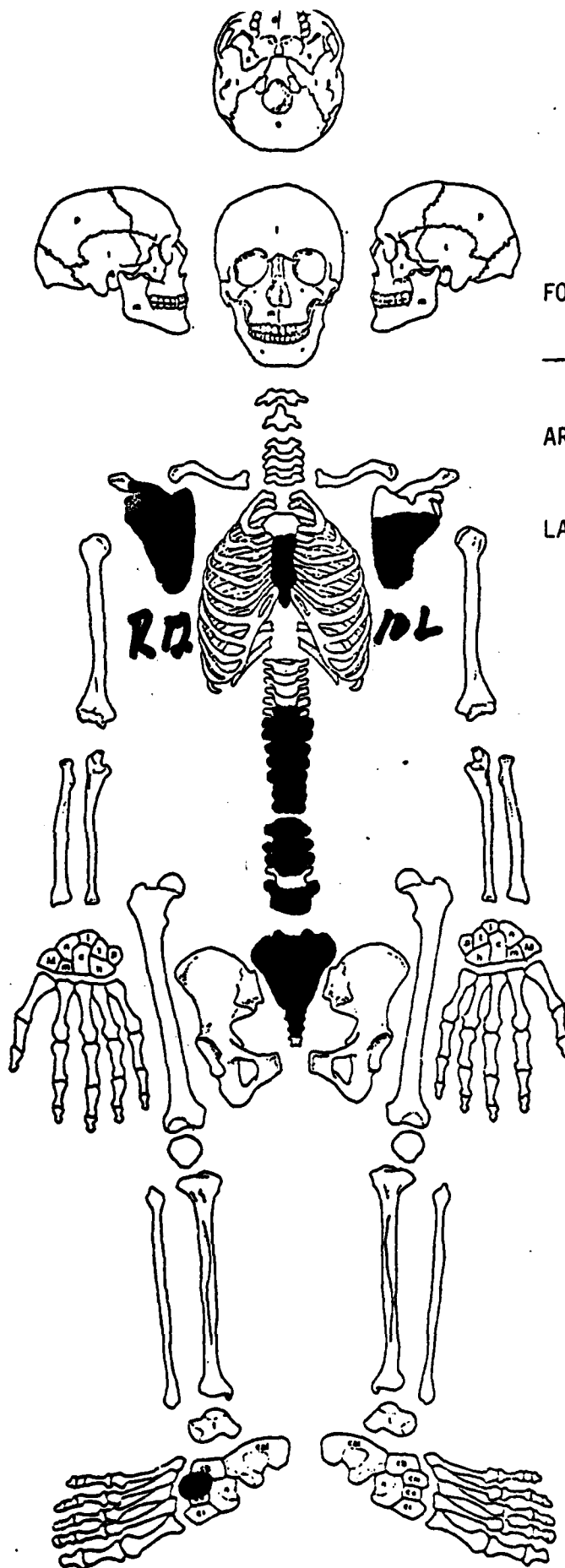
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APPENDIX A



FORENSIC CASE NUMBER

ARCH. SITE NO. 25KX71-

LAB. NO. O.L. 82-9

FORENSIC CASE NO. \_\_\_\_\_

ARCH. SITE NO. 25KX71 LAB. NO. 82-9

FIGURE 2. Bones present for this case.

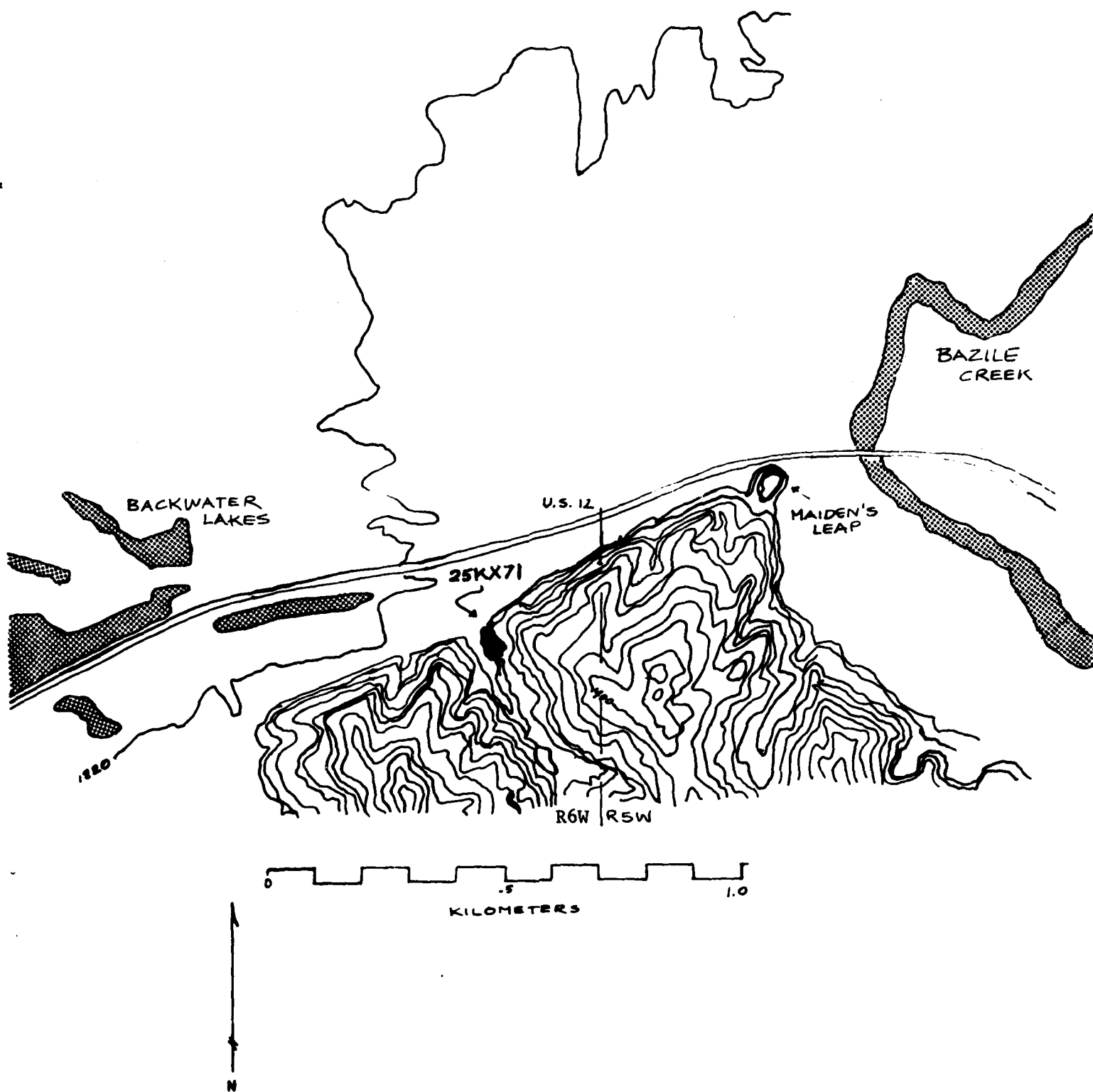


FIGURE 3. Map showing Location of 25KX71, Knox County, Nebraska  
(ref. Springfield 7.5' Quad, N4245W9752.5/7.5).  
20-foot contour interval.

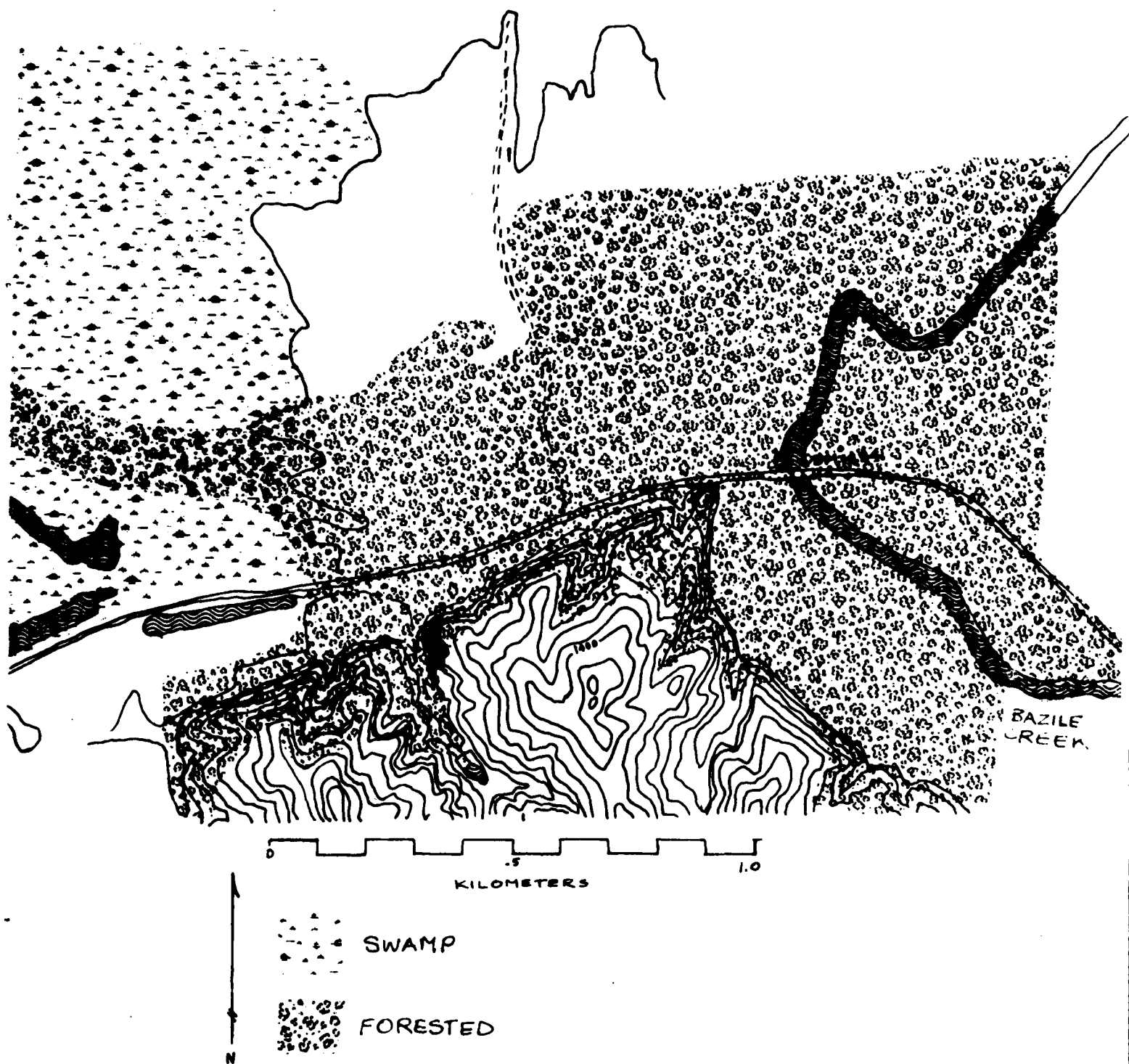


FIGURE 4. Present day vegetation and landforms, 25KX71

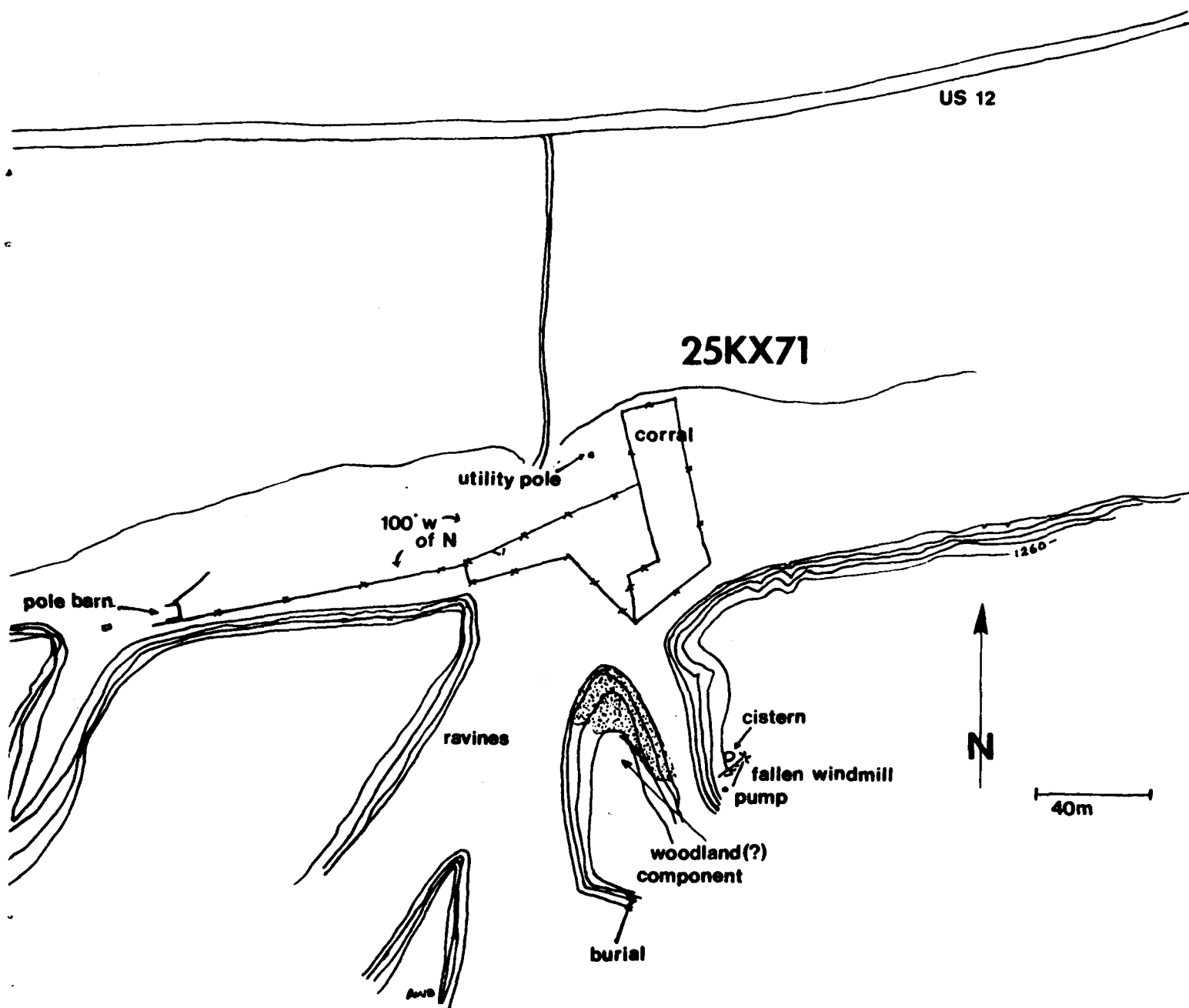


FIGURE 5. Site Map: 25KX71, showing historic and prehistoric components with location of burial.

TABLE 1. INFRACRANIAL MEASUREMENTS (IN MM.) AND INDICES FROM SKELETAL REMAINS OF SITE 25KX71. FOR REFERENCE, SEE TEXT AND FINNEGAN (1978b).

INFRACRANIAL MEASUREMENTS: (in mm.)

	Left	Right
Scapular length		166.0*
Scapular breadth		122.2
Spine length		
Supra-spinous length		
Infra-spinous length		130.0
Sacral height	105.3	
Sacral breadth	117.5	
Sacral body breadth	56.5	

INDICES

Scapular index	67.59*
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\*Indicates a close estimation of the measurement due to bone erosion at the measuring points.

TABLE 2. INFRACRANIAL NON-METRIC TRAITS FOUND IN SKELETAL MATERIAL  
FROM SITE 25KX71. FOR REFERENCE SEE TEXT AND FINNEGAN (1978a).

<u>NON-METRIC TRAIT</u>	Left	Right
Accessory sacral facet		A
Acromial articular facet	N	N
Suprascapular foramen	N	P
Circumflex sulcus	P	P

A = Absent

P = Present

N = No observation

S = Single

D = Double

**END**

**FILMED**

**9-83**

**DTIC**